

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2016/2017

BFN3144 – FINANCIAL DERIVATIVES

(All sections / Groups)

27 FEBRUARY 2017
2.30 P.M. – 4.30 P.M.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 4 pages. There are a total of 4 questions.
2. Answer **ALL** questions.
3. Marks are shown at the end of each question.

Answer all questions in the answer booklet provided.

QUESTION 1 (25 marks)

(A) You are provided with the following information:

3-month spot KLIBOR	6% p.a. (maturing on March 30th)
6-month spot KLIBOR	7% p.a. (maturing on June 30th)

(i) Calculate the implied forward rate (IFR) for the expected 3-month interest rate between March and June. Draw the timeline showing the relevant interest rates and tenors. (10 marks)

(ii) What would be the fair value of the March 3-month KLIBOR futures? (5 marks)

(B) Explain hedge ratio. (5 marks)

(C) Describe the two options traded under Bursa Malaysia Derivatives. (5 marks)

QUESTION 2 (25 marks)

(A) A call stock option with a strike price of RM50 cost RM2. A put stock option with a strike price of RM45 costs RM3. Explain how to use these two options to speculate if you expect the stock price to move substantially. Fill in the payoff table below and draw a payoff diagram. What is the pattern of profits from such strategy? (6 marks)

S_t	Call option	Call premium	Put option	Put premium	Net Profit
35					
40					
45					
50					
55					
60					

(14 marks)

Continued...

(B) Explain why option traders prefer to use spreads or combine option with stocks than a simple long or short options position, (5 marks)

QUESTION 3 (25 marks)

(A) Explain why higher interest rates lead to higher call option prices but lower put option prices. (6 marks)

(B) The current stock price is at RM80 with a volatility of 0.35. You buy a put option with the exercise price of RM80 and the time to expiration is 3 months from now. The risk-free interest rate is 5%. Answer the following questions.

(i) Use Black-Scholes option pricing model to compute the theoretical value of the put. (13 marks)

(ii) Suppose that the put is selling at RM4, suggest your strategy. (6 marks)

QUESTION 4 (25 marks)

(A) Explain two main reasons for a party enters into a currency swap transaction. (6 marks)

(B) Read the article carefully and answer the following questions.

China Said to Plan Trading Platform for Credit-Default Swaps

Bloomberg News

November 17, 2016 —

China is planning to start a trading platform for credit-default swaps after the transactions began between banks from last month, according to people familiar with the matter.

Continued...

The China Foreign Exchange Trade System, regulator of the interbank market, may start the platform soon, according to two of the people, who asked not to be identified because the details haven't been announced. CFETS said that if a credit event is triggered, the buyers of CDS should get 75 percent of the notional amount of the CDS contract, said the people. It said the rate hasn't been finalized and is subject to further changes, they said.

CDS market as investor demand rose for tools hedging against credit risks after at least 21 onshore bonds defaulted this year, compared with seven in 2015. On the first day of transactions on Oct. 31, 10 institutions including China's four biggest banks conducted 15 default swap deals with a combined 300 million yuan (\$44 million) of notional principal, according to a statement on the website of the National Association of Financial Market Institutional Investors.

An official at the press department of CFETS declined to comment.

Commercial banks were the main participants in the new credit-default swap market as regulators have yet to allow insurers or mutual funds to take part, according to the International Swaps and Derivatives Association, an industry group whose members include the world's biggest banks.

— *With assistance by Xize Kang, Shuqin Ding, and Judy Chen*

- (i) Explain credit default swap (CDS). (6 marks)
- (ii) In which market does CDS under trading? Provide two arguments on how CDS may have contributed to credit crisis. (13 marks)

End of Page

Table: Cumulative Normal Distribution

d	$N(d)$	d	$N(d)$	d	$N(d)$	d	$N(d)$	d	$N(d)$	d	$N(d)$
-3.00	.0013	-1.58	.0571	-0.76	.2236	0.06	.5239	0.86	.8051	1.66	.9515
-2.95	.0016	-1.56	.0594	-0.74	.2297	0.08	.5319	0.88	.8106	1.68	.9535
-2.90	.0019	-1.54	.0618	-0.72	.2358	0.10	.5398	0.90	.8159	1.70	.9554
-2.85	.0022	-1.52	.0643	-0.70	.2420	0.12	.5478	0.92	.8212	1.72	.9573
-2.80	.0026	-1.50	.0668	-0.68	.2483	0.14	.5557	0.94	.8264	1.74	.9591
-2.75	.0030	-1.48	.0694	-0.66	.2546	0.16	.5636	0.96	.8315	1.76	.9608
-2.70	.0035	-1.46	.0721	-0.64	.2611	0.18	.5714	0.98	.8365	1.78	.9625
-2.65	.0040	-1.44	.0749	-0.62	.2676	0.20	.5793	1.00	.8414	1.80	.9641
-2.60	.0047	-1.42	.0778	-0.60	.2743	0.22	.5871	1.02	.8461	1.82	.9656
-2.55	.0054	-1.40	.0808	-0.58	.2810	0.24	.5948	1.04	.8508	1.84	.9671
-2.50	.0062	-1.38	.0838	-0.56	.2877	0.26	.6026	1.06	.8554	1.86	.9686
-2.45	.0071	-1.36	.0869	-0.54	.2946	0.28	.6103	1.08	.8599	1.88	.9699
-2.40	.0082	-1.34	.0901	-0.52	.3015	0.30	.6179	1.10	.8643	1.90	.9713
-2.35	.0094	-1.32	.0934	-0.50	.3085	0.32	.6255	1.12	.8686	1.92	.9726
-2.30	.0107	-1.30	.0968	-0.48	.3156	0.34	.6331	1.14	.8729	1.94	.9738
-2.25	.0122	-1.28	.1003	-0.46	.3228	0.36	.6406	1.16	.8770	1.96	.9750
-2.20	.0139	-1.26	.1038	-0.44	.3300	0.38	.6480	1.18	.8810	1.98	.9761
-2.15	.0158	-1.24	.1075	-0.42	.3373	0.40	.6554	1.20	.8849	2.00	.9772
-2.10	.0179	-1.22	.1112	-0.40	.3446	0.42	.6628	1.22	.8888	2.05	.9798
-2.05	.0202	-1.20	.1151	-0.38	.3520	0.44	.6700	1.24	.8925	2.10	.9821
-2.00	.0228	-1.18	.1190	-0.36	.3594	0.46	.6773	1.26	.8962	2.15	.9842
-1.98	.0239	-1.16	.1230	-0.34	.3669	0.48	.6844	1.28	.8997	2.20	.9861
-1.96	.0250	-1.14	.1271	-0.32	.3745	0.50	.6915	1.30	.9032	2.25	.9878
-1.94	.0262	-1.12	.1314	-0.30	.3821	0.52	.6985	1.32	.9066	2.30	.9893
-1.92	.0274	-1.10	.1357	-0.28	.3897	0.54	.7054	1.34	.9099	2.35	.9906
-1.90	.0287	-1.08	.1401	-0.26	.3974	0.56	.7123	1.36	.9131	2.40	.9918
-1.88	.0301	-1.06	.1446	-0.24	.4052	0.58	.7191	1.38	.9162	2.45	.9929
-1.86	.0314	-1.04	.1492	-0.22	.4129	0.60	.7258	1.40	.9192	2.50	.9938
-1.84	.0329	-1.02	.1539	-0.20	.4207	0.62	.7324	1.42	.9222	2.55	.9946
-1.82	.0344	-1.00	.1587	-0.18	.4286	0.64	.7389	1.44	.9251	2.60	.9953
-1.80	.0359	-0.98	.1635	-0.16	.4365	0.66	.7454	1.46	.9279	2.65	.9960
-1.78	.0375	-0.96	.1685	-0.14	.4443	0.68	.7518	1.48	.9306	2.70	.9965
-1.76	.0392	-0.94	.1736	-0.12	.4523	0.70	.7580	1.50	.9332	2.75	.9970
-1.74	.0409	-0.92	.1788	-0.10	.4602	0.72	.7642	1.52	.9357	2.80	.9974
-1.72	.0427	-0.90	.1841	-0.08	.4681	0.74	.7704	1.54	.9382	2.85	.9978
-1.70	.0446	-0.88	.1894	-0.06	.4761	0.76	.7764	1.56	.9406	2.90	.9981
-1.68	.0465	-0.86	.1949	-0.04	.4841	0.78	.7823	1.58	.9429	2.95	.9984
-1.66	.0485	-0.84	.2005	-0.02	.4920	0.80	.7882	1.60	.9452	3.00	.9986
-1.64	.0505	-0.82	.2061	0.00	.5000	0.82	.7939	1.62	.9474	3.05	.9989
-1.62	.0526	-0.80	.2119	0.02	.5080	0.84	.7996	1.64	.9495		
-1.60	.0548	-0.78	.2177	0.04	.5160						

This table shows the probability $[N(d)]$ of observing a value less than or equal to d . For example, as illustrated, if d is -0.24 , then $N(d)$ is $.4052$.